

REMARKS

Claims 1, 5-6, and 14-16 are pending in the present application, claims 14-16 having been added and claims 2-4 and 7-13 having been cancelled herein without prejudice or disclaimer. The Office Action and cited references have been considered. Favorable reconsideration is respectfully requested. Applicant notes with application the indication that claims 11 and 13 are allowable over the prior art of record.

Claim 3 was rejected under 35 U.S.C. §112, second paragraph. Claim 3 has been cancelled. Withdrawal of this rejection is respectfully requested.

Claims 1-2, 4-10 and 12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Bank. This rejection is respectfully traversed for the following reasons.

Claim 1 recites a panel speaker comprising an exciter including bimorph beams which are made of a piezoelectric material and in each of which a flexural oscillation is excited, and a beam holding part for holding the beams; and a diaphragm which is attached to the exciter at the beam holding part to generate a flexural oscillation based on oscillation transmitted from the exciter and serves as a protective plate for a display, a bottom surface of the beam holding part of the exciter having an area which is greater than or equal to one-fourth of an area of the largest beam of the beams, and the area of the bottom surface of the beam holding part being fixed to a surface of the diaphragm the exciter being held on the diaphragm. This is not taught, disclosed or made obvious by the prior art of record.

The Examiner points out that the cited reference Bank discloses an exciter including bimorph type beams (43, 51) and a beam holding part for holding the beams (56), and a diaphragm (54) to generate a flexural oscillation based on oscillation from the exciter. The

Examiner acknowledges that, “Bank does not teach the exact dimensions of the bottom surface of the beam holding part of the exciter.” The Examiner goes on to assert, without citing support in the patent text that “Bank does teach that the dimension beam holding part should be selected according to the desired acoustic characteristic.” The Examiner then asserts that “one of ordinary skill in the art would have selected a proper dimension of the bottom surface of the beam holding part for the desired acoustic characteristic, including an area which is greater than or equal to one-fourth of an area of the largest beam of the beams.” Applicant respectfully disagrees.

Bank discloses that “the coupler may form a line of attachment. Alternatively, the coupler may form a point or small local area of attachment where the area of attachment is small in relation to the size of the resonant element. The coupler may be in the form of a stub and have a small diameter, e.g., about 3 to 4 mm.” Paragraph [0023]. Further, Bank discusses providing a stub as a coupler to connect the resonant elements to each other and to the transducer. See, e.g., paragraphs [0054], [0061] and [0073]. In one place, Bank states that the stub “may be about 1-2 mm wide and high.” Bank contains no disclosure of the relationship between the stub size and the beam size. Nor does Bank include any suggestion that the size relationship of the two elements can provide any benefits in the operation of the speaker.

However, in the present invention the reason for setting the area of the bottom surface of the beam holding part to be greater than or equal to one-fourth of the area of the largest beam of the beams, which Bank does not teach, is to accomplish a highly efficient excitation and a firm fixation, and consequently, fixing structure of a panel speaker according to the present invention becomes simplified. See page 7, lines 14-20 of the present application. It

is by setting the area of the bottom surface of the beam holding part in the present invention to a predetermined value in this way that the above-described superior operational effects can be obtained, and such operational effects are not suggested in the disclosure of Bank.

Consequently, the amended claim 1 of the present invention cannot be said to be an ordinary technical matter for a person skilled in the art, and the present invention would not have been obvious to a person ordinarily skilled in the art.

Claims 5 and 6 are dependent on aforementioned claim 1, and since claim 1 is patentable as described above, claims 5 and 6 also are patentable.

Regarding the inventions of claims 2, 3 and 4, combined claims 2 and 3 has been added to claim 1 as a new claim 14, and combined claims 2 and 4 has been added to claim 1 as a new claim 15, respectively, as independent claims. New claim 16 is added, based on an alternative embodiment of the present invention. These claims are believed to be patentable at least for the reasons discussed above with respect to claim 1.

In view of the above amendment and remarks, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejections of record. Applicant submits that the application is in condition for allowance and early notice to the effect is most earnestly solicited.

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If the Examiner has any questions, he is invited to contact the undersigned at 202-628-5197.

Respectfully submitted,

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